

## SCR2043 OPERATING SYSTEMS

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Marks
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Instruction: Please do the following activities in sequence. Once completed, ask your lecturer/instructor to verify your results by putting his / her initial.

Please make sure the answer always starts **with a low capital letter**.

### **ACTIVITY 1 : BASIC LINUX COMMANDS**

Write down instructions under the command column.

Each answer is given 1 mark.

**You need a terminal window to enter all your commands in sequence.**

	Task	Command
1	List the content of the directory	<code>ls</code>
2	Create a directory with your name.	<code>mkdir Group5</code>
3	Change the working directory to the directory created in previous Task 2.	<code>cd Group5</code>
4	To display your current directory now	<code>pwd</code>
5	Making 3 subdirectories in your current directory with the given name; SECR SCSR SECRH	<code>mkdir SECR</code> <code>mkdir SCSR</code> <code>mkdir SECRH</code>
6	List all created directories available.	<code>ls</code>
7	Create a directory (Fish) under one of those directories created in Task 5	<code>mkdir SECR/Fish</code>

	without changing the working directory.	
8	Create a directory (Monkey) under the other one of those directories created in Task 5 without changing the working directory.	<code>mkdir SCSR/Monkey</code>
9	Change working directory to Fish	<code>cd SECR/Fish</code>
10	Create a new directory Turtle under the same directory as Fish.	<code>mkdir ../Turtle</code>
11	List all directories and subdirectories under the parent of the current working directory (Task 2).	<code>ls ../</code>
12	From the current working directory, create a new directory Whale under the same directory as Fish	<code>mkdir ../Whale</code>
13	Rename Fish into another new name as CatFish.	<code>mv ../Fish ../CatFish</code>
14	Remove the directories with no sub-directory created in task 5.	<code>rm -d ../../SECRH</code>
15	Return back to /home directory	<code>cd ~</code>
16	Complete the file structure of the entire tasks done. (Hint: use tree command) [2 marks]	

```
[liveuser@localhost-live ~]$ cd ~
[liveuser@localhost-live ~]$ tree Group5
Group5
├── SCSR
│   └── Monkey
├── SECR
│   ├── CatFish
│   ├── Turtle
│   └── Whale
6 directories, 0 files
[liveuser@localhost-live ~]$
```

**ACTIVITY 2 : WRITING A PROGRAM / SOURCE CODE**

This activity continuous from the previous activity 1.

Write the command in the provided boxes.

Each answer is given 1 mark.

1. Continuing from task (13) in activity 1, go directly to your `Whale` directory as your working directory.

Command: `cd Group5/SECR/Whale`

2. By using a terminal, open a simple text editor provided in Ubuntu OS by typing the command either `pico` or `nano`. Create a file by using a name of `fork1.c`.

Command: `nano fork1.c`

3. Type the following simple source code correctly. Use the menu given by the editor to do your task.

```

zuriahati@fedora:~/Zue/SECR/Whale — nano
File Edit View Search Terminal Help
GNU nano 5.6.1                               New Buffer                               Modified
#include<stdio.h>
#include<unistd.h>

int main ()
{
int pid;
printf("\n Welcome to SECR2043\n");
pid = fork();
if (pid = 0)
    printf("I am the Child\n");
else
    printf("I am the parent and my child PID is %d", pid);

printf("\n Bye Bye");
}

[ Read 15 lines ]
^G Help      ^O Write Out  ^W Where Is   ^K Cut        ^T Execute    ^C Location
^X Exit      ^R Read File  ^\ Replace    ^U Paste      ^J Justify    ^_ Go To Line

```

Source: <http://www.osix.net/modules/article/?id=641>

4. Once you finished typing the source code, save the file using menu `WriteOut` with control button.

5. Make a copy of the file in the same directory with name `fork2.c`.

```
Command: cp fork1.c fork2.c
```

6. Make another copy of the `fork2.c` file into Monkey directory with name `fork3.c`.

```
Command: cp fork2.c ../../SCSR/Monkey/fork3.c
```

7. Move the `fork2.c` file in current directory into `CatFish` directory.

```
Command: mv fork2.c ./CatFish
```

8. View the content of the file `fork1.c` without using the editor.

```
Command: cat fork1.c
```

**ACTIVITY 3 : COMPILING THE PROGRAM / SOURCE CODE**

This activity continuous from the previous activity 2.

Write the command in the provided boxes. This activity will show the process of compiling the source code written in C programming language.

Each answer is given 1 mark.

1. By using a terminal, change your working directory to `Monkey` directory. You need to compile the `fork3.c` file in that directory.

```
Command: cd ../../SCSR/Monkey
```

2. To compile the source code, you need a compiling command for C programming, which is `gcc`. Compile the `fork3.c` file using that command.

```
Command: gcc fork3.c
```

3. Execute the output file generated in the directory. If you didn't specify the output, a default filename of `a.out` will be produced

```
Command: ./a.out
```

4. Re-compile the `fork3.c`, and do specify the output filename in the command as `fork3result` (use `-o` option).

```
Command: gcc fork3.c -o fork3result
```

5. Execute the specified output file generated in previous step.

```
Command: ./fork3result
```

6. From current working directory, compile the `fork1.c` file in `Whale` directory. Do specify the output filename as `fork1result`.

```
Command: gcc ../../SECR/Whale/fork1.c -o fork1result
```

7. Execute the output file generated (`fork1result`.)

```
Command: ./fork1result
```

8. Remove the `a.out` file in related directory.

```
Command: rm a.out
```

9. Redraw the final directories and files generated. (Hint: use `tree` command)  
[2 marks]

```
[feliciachinhui@fedora ~]$ tree Group5
Group5
├── SCSR
│   ├── Monkey
│   │   ├── fork1result
│   │   ├── fork3.c
│   │   └── fork3result
│   └── SECR
│       ├── CatFish
│       │   └── fork2.c
│       ├── Turtle
│       └── Whale
│           └── fork1.c
6 directories, 5 files
```

*.End of Lab1*